
Name of Organization: The Nature Conservancy

Type of Organization: Other

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Great Lakes Program

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Project Title: Migrant bird use of land/water interfaces--Phase I

Project Category: Habitat (Ecological) Protection and Rest

Rank by Organization (if applicable): 1

Total Funding Requested (\$): 48,000 **Project Duration:** 1.5 Years

Abstract:

Conventional wisdom says that migrant landbirds in spring move north as leaf-out of trees progresses, feeding on the caterpillars that eat the new leaves. Recent information suggests, however, that toward the end of the northward movement the birds outrun leafout and switch to emergent aquatic insects (e.g., midges) as their basic, critical prey. The shift in major prey necessitates a change in habitat use, from forest in general to riparian and coastal areas. Conservation of migrant birds requires provision of stopover sites with adequate prey resources all along the migration route, but clearly the kinds of sites needed would change from south to north, in accordance with the kind of habitat where birds find their prey. To devise conservation programs that address the needs of migrant birds, we need basic information on locations of migrant concentrations on the migration routes, migrant use of different kinds of land/water interfaces (coastal, stream, lake, or pond margins), timing of leaf-out and aquatic insect emergence on the south-north gradient and in the different habitats, and foraging behavior of the migrants as they move northward. Phase I of the overall project has two components: 1) document areas of bird concentrations at all radar-covered sites near Great Lakes coastlines, using NEXRAD radar images; 2) test sampling protocols and obtain preliminary data documenting the bird species, their foraging behavior, and timing of leaf-out and aquatic insect emergence in different kinds of land/water interfaces on the south-north gradient. Outcomes: a) initial identifications of important stopover sites; b) predictive power needed to identify additional sites and to prepare a larger, more comprehensive proposal documenting the ecological needs of landbird migrants and the conservation action needed to protect them (Phase II). Information obtained from both components is essential to filling critical gaps in the Great Lakes ecoregional planning effort.

Geographic Areas Affected by the Project

States:

<input checked="" type="checkbox"/> Illinois	<input checked="" type="checkbox"/> New York
<input checked="" type="checkbox"/> Indiana	<input checked="" type="checkbox"/> Pennsylvania
<input checked="" type="checkbox"/> Michigan	<input checked="" type="checkbox"/> Wisconsin
<input checked="" type="checkbox"/> Minnesota	<input checked="" type="checkbox"/> Ohio

Lakes:

<input type="checkbox"/> Superior	<input type="checkbox"/> Erie
<input type="checkbox"/> Huron	<input type="checkbox"/> Ontario
<input type="checkbox"/> Michigan	<input checked="" type="checkbox"/> All Lakes

Geographic Initiatives:

☐ Greater Chicago ☐ NE Ohio ☐ NW Indiana ☐ SE Michigan ☐ Lake St. Clair

Primary Affected Area of Concern: All AOCs

Other Affected Areas of Concern: actually, many but not all

For Habitat Projects Only:

Primary Affected Biodiversity Investment Area: All BIAs

Other Affected Biodiversity Investment Areas: actually, many but not all

Problem Statement:

In 1997, with support from GLNPO, the Conservancy's Great Lakes Program launched an ambitious effort to systematically identify the full range of conservation sites and actions that will be needed to sustain biodiversity of the Great Lakes ecosystem over the long term. Although an impressive collection of sites have been identified thus far, there are critical gaps that remain to be addressed. One notable missing piece is that the current collection of sites does not include adequate stopover sites for migrating birds.

In order to conserve diversity of migrant birds, stopover sites must continue to exist all along their flight paths. With our present state of knowledge, we cannot identify these sites, except for a few famous, well-studied ones, such as Long Point, Point Pelee, and those noted by Ewert's (1999) initial survey of important sites for vulnerable bird species. Phase I of this project will identify some important stopover sites in selected regions of the Great Lakes basin, and the data will be used to derive predictive power for identification of such sites in other parts of the ecoregion. This study is necessarily preliminary, given the inadequacy of existing ecological information, the level of funding available at present, and the expected range of annual variation; it provides the basis for the more comprehensive Phase II. By identifying a continuum of sites for migrants, it contributes to LaMPS holistic concern with whole-lake systems. The project overlaps geographically with many Areas of Concern and Biodiversity Investment Areas (aquatic, nearshore terrestrial, coastal wetland) and will help direct habitat conservation priorities therein; it also amplifies the indicator called "Wetland-dependent bird diversity and abundance" (SOLEC 1999) by including migrants. Building on previous studies funded by GLNPO, we would start filling critical gaps that have been identified by the Conservancy's Great Lakes ecoregional planning initiative, with the ultimate aim (in a subsequent, larger proposal--Phase II) of developing a comprehensive collection of stopover sites.

Proposed Work Outcome:

Part 1. Documenting areas of birds concentrations within range of NEXRAD radar stations near Great Lakes coasts.

Terri Donovan and David Bonter (presently at Syracuse University), with GLNPO funds, are already addressing this problem for New York. In collaboration with these researchers, we propose to extend their work to the western Great Lakes. Radar images are available from nine stations on the Great Lakes coasts outside of New York but do not cover the entire coastline. We can expand the information in the radar images to areas not covered directly by making pointed comparisons of particular interest within the covered areas. These comparisons include shore vs inland, rocky vs sandy shores (obtainable from GIS layers of the Conservancy) and riparian vs upland areas. By analyzing the radar-covered areas for these comparisons, we would obtain predictive power for the areas not covered directly; the predictive capability would then be used to identify and map important stopover sites all along the coastline. This part of the study covers the Great Lakes basin on the U.S. side (Canadian radar images are not yet suitable for this kind of analysis).

Outcome: a map of avian concentrations in spring and fall migrations, pinpointing sites to be considered for conservation

action.

Part 2. Conduct censuses of avian migrants, leaf-out of forest trees, emergence of aquatic insects at selected sites along the south-north gradient in different kinds of land/water interfaces (rivers, ponds, lakes, marsh, coast).

The gradient would extend from southern Illinois (to establish the truth of the conventional wisdom about migrants following leaf-out) to northern Illinois, southern and western Michigan, eastern Wisconsin, the Upper Peninsula of Michigan, and the north shore of Lake Superior in Ontario, encompassing the latitudes within which the habitat shifts have been indicated.

This work would test our sampling protocols and provide preliminary data for Phase II. It also provides some early suggestions of important stopover sites and should yield predictive power for other areas, to be explored in more detail in the later proposal.

Outcome: Building the capacity to develop a comprehensive understanding of habitat use by avian migrants throughout the Great Lakes basin, so that conservation sites can be selected and managed with knowledge of migrants' needs. This part establishes the ecology underlying the patterns seen in Part 1, providing necessary information to guide longterm conservation of sites in response to factors such as habitat loss and global warming.

Since the purpose of this project is to identify critical stopover sites for migratory bird conservation, we cannot know the number of acres that could be positively impacted until this project is complete.

Project Milestones:

Dates:

Project start: Part 2

05/2000

Project start: Part 1

09/2000

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Project End

10/2001

☒ Project Addresses Environmental Justice

If So, Description of How:

While this preproposal does not specifically target environmental justice issues, it would provide important information for environmental justice initiatives who share similar conservation goals with the Conservancy. The Conservancy could provide information on priority sites for migratory bird conservation to conservation partners who are working to protect areas where environmental justice concerns coincide with important biodiversity sites.

☒ Project Addresses Education/Outreach

If So, Description of How:

Outcomes will be incorporated into the Conservancy's Great Lakes ecoregional plan and will be shared with Conservancy Field Offices in the Great Lakes region and with the Conservancy's partners. Partners include state DNRs, EPA, US Forest Service, US Fish and Wildlife Service, local Audubon chapters and land trusts. Outcomes can readily be incorporated into the Conservancy's community-based conservation programs that are within the Great Lakes basin, especially since many people enjoy the annual bird migrations.

We also expect some of the results to lead to scientific publications, reaching conservation scientists and practitioners across the continent. Results from this project will be able the Conservancy and other conservation partners to direct time and resources to protecting the needed continuum of stopover sites along migrant birds' flight paths. Results will also enable conservation practitioners to devise conservation strategies that take into consideration migrating birds' reliance on a variety of food sources and the consequent shifting habitat needs of these birds during their migration.

Project Budget:

	Federal Share Requested (\$)	Applicant's Share (\$)
Personnel:	23,838	0
Fringe:	4,662	0
Travel:	10,000	0
Equipment:	0	0
Supplies:	1,000	0
Contracts:	0	0
Construction:	0	0
Other:	500	15,000
Total Direct Costs:	40,000	15,000
Indirect Costs:	8,000	0
Total:	48,000	15,000
Projected Income:	0	0

Funding by Other Organizations (Names, Amounts, Description of Commitments):

If this request is funded, The Nature Conservancy's Great Lakes Program would allocate the \$15,000 noted in the "Other" budget category from discretionary funds toward this project so that the total cost of Phase I would be covered.

Description of Collaboration/Community Based Support:

This project involves collaboration with the University of Illinois, the Illinois Natural History Survey, Michigan Natural Features Inventory, the University of Wisconsin-Green Bay, the Conservancy's Door County Field Office, and possibly other field teams, as well as the Conservancy's state chapters in the Great Lakes region.